

# GENERAL INFORMATION

## DATE

Conference: **September 28-30, 2011 (Official language is English)**

Short Courses/Workshops: **September 27, 2011 (in English)**

## CONFERENCE VENUE

### Aichi Industry & Labor Center (WINC AICHI)

4-4-38 Meieki, Nakamura-ku, Nagoya, Aichi 450-0002, Japan

Phone: +81-52-571-6131 Fax: +81-52-571-6132

<http://www.winc-aichi.jp/>

SSDM 2011 will be held at WINC AICHI, the main Conference room of WINC AICHI. The access map to the Conference is available in the conference website and also on Page 61 in this booklet. The conference rooms are distributed over the venue. For details, see the map on the conference website and on Page 62-64 in this booklet.

### Nagoya Marriott Associa Hotel

1-1-4 Meieki, Nakamura-ku Nagoya, Aichi 450-6002, Japan

Phone: + 81-52-584-1212 Fax: + 81-52-584-1213

<http://www.associa.com/english/>

Conference Banquet will be held on September 28, 19:00-21:00 at Tower Ball Room, 16F, in Nagoya Marriott Associa Hotel. The hotel is located in five minutes walk from the WINC AICHI. The access map from WINC AICHI to the hotel is available on the conference website and on Page 61 in this booklet. The Banquet fee is NOT included in the Registration fee. Participants who wish to attend the banquet are requested to order the banquet ticket beforehand. Drinks and appetizers will be served. During the Banquet, SSDM Young Researcher Award ceremony will be held.

## TECHNICAL SESSIONS AND EVENTS

### Oral and Poster Presentations:

The oral presentations will be held at halls located on 5th, 10th, 11th, and 12th floor in WINC AICHI. during the conference. The poster presentations will be held on September 29, 13:30-15:00, at Exhibition Hall, 6F, in WINC AICHI.

### Plenary Sessions:

Plenary Sessions are scheduled on September 28, 9:40-12:15 at WINC HALL, 2F, in WINC AICHI. Non-Technical Plenary Talk-Sep.28, 2011, “Social Contribution and Next Giant Leap of Semiconductors” by Masao Fukuma (Semiconductor Industry Research Institute Japan, Japan) will be held from 9:40-10:25. Technical Plenary Talk-Sep.28, 2011, “A Car Guy’s Expectations for Electronics” by Moritaka Yoshida (Toyota Motor Corporation, Japan) will be held from 10:45-11:30 and “Electronics Proliferation through

Diversification” by Tsu-Jae King Liu (University of California at Berkeley, U.S.A) from 11:30-12:15.

### Welcome Reception:

The welcome Reception will be held on September 27, 18:00-20:00 at Conference Room 1002, 10F, in WINC AICHI.

### Rump Sessions:

SSDM 2011 is organizing Rump Session to be held on September 29, 19:00-21:00 at HALL 1&2, 5F, in WINC AICHI. Details can be found on Page 44.

### Short Courses ( in English):

On September 27, 10:00-17:30, two short course lectures will be held at “Toyoda Auditorium Nagoya University Symposion” and “Noyori Conference Hall”, in Nagoya University. Two courses are for beginners, young researchers and engineers, and students.

- 1) Material and Processing for Advanced CMOS – From Fundamental to State-of-the-Art –
- 2) Fundamentals and Applications of Carbon Nanotube and Graphene

\*Registrants for short course are able to attend both courses freely.

### Workshops (in English):

Workshop will be held on September 27, 13:00-17:45 at Hall 1 and Hall 2, 5F, in WINC AICHI.

- 1) Current Status and Future Prospective of Wide Gap Semiconductor Power Devices
- 2) Advancement in Printed Organic Electronics

\*A resistant for one workshop is NOT ABLE to attend another workshop.

### Award Ceremony:

Award Ceremony for SSDM Award and SSDM Paper Award will be held in Plenary Sessions, which will start at 9:30 AM on September 28 at WINC HALL,2F, in WINC AICHI.

### Exhibition:

Exhibition will be held at the exhibition space, Conference Room 1001, 10F. It will start from 8:30-18:00 on September 28, from 8:30-19:00 on September 29, and from 8:30-14:00 on September 30. For details, see Page 48.

## REGISTRATION

The Registration desk will be open September 27 to 30. Open hours are as follows:

September 27 16:00 – 19:00 at conference room (10F)

September 28 08:30 – 12:30 at WINC HALL Area (2F)

September 28 12:30 – 17:30 at conference room (10F)

September 29 08:30 – 17:30 at conference room (10F)

September 30 08:30 – 15:30 at conference room (10F)

### **SPECIAL ISSUE of JJAP**

Authors of SSDM 2011 papers are encouraged to submit their original papers to the Special Issue of Japanese Journal of Applied Physics which will be published in February and April, 2012.

### **INSURANCE**

The organizer cannot accept responsibility for accidents that may occur during a delegate's stay. Delegates are therefore encouraged to obtain travel insurances (medical, personal accident, and luggage) in their home countries prior to departure.

### **CLIMATE**

Nagoya is warm and sometimes humid in September. The temperature range is 18-30°C.

### **ELECTRICAL APPLIANCES**

Japan operates on 100 volts for electrical appliances. The frequency is 50 Hz in eastern Japan including Tokyo and 60 Hz in western Japan including Nagoya (conference site), Kyoto and Osaka.

### **INTERNET ACCESS**

Complementary internet connection will be available on Speakers Room, 11F, where you can only use the SSDM PC installed in the room to use internet access freely or check your presentation.

# PLENARY SESSION

**September 28 (Wednesday) 9:40-12:15**  
**2F WINC HALL, WINC AICHI**

## **Non -Technical Plenary Talk**

9:40-10:25

**“Social Contribution and Next Giant Leap of Semiconductors”**

**Masao Fukuma**

Semiconductor Industry Research Institute Japan, Japan

## **Technical Plenary Talk**

10:45-11:30

**“ A Car Guy’s Expectations for Electronics ”**

**Moritaka Yoshida**

Toyota Motor Corporation, Japan

11:30-12:15

**“ Electronics Proliferation through Diversification. ”**

**Tsu-Jae King Liu**

University of California at Berkeley, USA

# RUMP SESSIONS

–September 29 (Thursday) 19:00-21:00

## Session A (5F Hall 1)

### “Opportunities and Challenges of Heterogeneous Integration on CMOS” -Photonics, MEMS, Sensors, etc -

Si CMOS miniaturization has brought great impacts on information and communication technologies for a long time. Miniaturization, so called More Moore, is going to down to less than 10nm, although there may be various technological difficulties and economical obstacles. Heterogeneous integration and/or integration with diverse functionalities such as photonics, MEMS (Micro Electro Mechanical Systems), sensing, etc., so called More Than Moore, is expected to open the new paradigm. In this rump session, experts of photonics, MEMS, sensing, and CMOS will discuss what is expected to be brought by heterogeneous integration, and how we should collaborate for their convergence system.

Organizer: S. Miyazaki (Nagoya Univ.)

Moderators: K. Masu (Tokyo Tech)  
J. Fujikata (NEC Corp.)

Panelists: Y. Arakawa (Univ. of Tokyo)  
N. Nishiyama (Tokyo Tech)  
T. Seki (Omron Corp.)  
T. Ohguro (Toshiba Corp.)  
K. Maenaka (Univ. of Hyogo)

## Session B (5F Hall 2)

### “Future Roadmap for Graphene Science and Technology”

Graphene is a new class of two-dimensional materials and has a wide range of potential applications. In this rump session, panelists will propose optimistic scenarios for future graphene science and technology in several categories; quantum electronics, nanostructure, production, process, transistors, photonics, transparent electrodes, and so on. Some of the most difficult hurdles for the future will be picked up for each category, and the current challenges will be explained. By predicting how and when the hurdles are overcome in an optimistic manner, the future roadmap for graphene science and technology will be built.

Organizer: H. Yamaguchi (NTT Corp.)

Moderators: T. Otsuji (Tohoku Univ.)  
H. Hibino (NTT Corp.)

Panelists: T. Ihn (ETH Zurich)  
K. Nagashio (Univ. of Tokyo)  
S. Sato (AIST)  
S. Tanaka (Kyushu Univ.)  
K. Uchida (Tokyo Tech)

# SHORT COURSES

September 27, 2011, Nagoya University

=Short Course (1)=

## Materials and Processing for Advanced CMOS – From Fundamentals to State-of-the-Art –

Organizer : Seiichi Miyazaki (Nagoya University)

This short course is aimed at graduated students and young researchers from both industry and academia, and world's leading experts in the field of silicon technology will lecture on the fundamental aspect and knowledge about material processing and device technologies for Si CMOS devices including the overview of technological issues and challenges in the past, today and the future. All lectures will be done in English, and all participants at SSDM 2011 are welcome.

10:00 - 11:30 **Plenary Lecture**

“3D Integration Technology and New Application”

Mitsumasa Koyanagi, New Industry Creation Hatchery Center, Tohoku University

(11:30 - 12:30 Lunch)

12:30 - 13:15 “Review on Advanced Gate Stack Technology”

Byoung Hun Lee, Gwangju Institute of Science and Technology

13:15 - 14:00 “Channel Engineering for Advanced CMOS Devices”

Shinichi Takagi, The University of Tokyo

14:00 - 14:45 “Control of Plasma-Surface Reactions for Next Generation Semiconductor Devices”

Tetsuya Tatsumi, Sony Corporation, Keio University

(14:45 - 15:00 Break)

15:00 - 15:45 “Advanced Lithography”

Shinji Okazaki, EUVA/GIGAPHOTON INC.

15:45 - 16:30 “Random Variability in Scaled MOS Transistors”

Toshiro Hiramoto, The University of Tokyo

16:30 - 17:30 Lab Tours

=Short Course (2)=

## Fundamentals and Applications of Carbon Nanotube and Graphene

Organizers : Yutaka Ohno (Nagoya University)

Shintaro Sato (AIST)

This short course is intended for students and young researchers who are interested in electronics applications of carbon nanotubes and graphene. The world's leading experts in this field will lecture on their fundamental electronic structure and transport phenomena, growth and characterization techniques, device and conductor applications, together with recent progresses and future aspects. All lectures will be done in English, and all SSDM participants from overseas as well as Japan are welcome.

10:00 - 11:30 **Plenary Lecture**

“3D Integration Technology and New Application”

Mitsumasa Koyanagi, New Industry Creation Hatchery Center, Tohoku University

(11:30 - 12:30 Lunch)

12:30 - 13:15 “Electron and Phonon of Graphene Related Materials”

Riichiro Saito, Tohoku University

13:15 - 14:00 “Graphene Transport Modulated by Gate Electric field”

Kazuhiko Tsukagoshi, Hisao Miyazaki, Song-Lin Li, NIMS-MANA, CREST-JST

14:00 - 14:45 “Recent Advances in Growth and Characterization of Graphene and Nanotubes”

Hiroki Ago, Kyushu University

(14:45 - 15:00 Break)

15:00 - 15:45 “Carbon Nanotubes for VLSI: Interconnect and Transistor Applications”

Yuji Awano, Keio University

15:45 - 16:30 “Graphene Films for Electronic Applications”

Jong-Hyun Ahn, Sungkyunkwan University

16:30 - 17:30 Lab Tours

# WORKSHOPS

September 27, 2011, WINC AICHI

## =Workshop (1)=

### Current Status and Future Prospective of Wide Gap Semiconductor Power Devices

Organizers : Hideto Miyake (Mie University)  
Tatsuo Oomori (Mitsubishi Electric Corporation)

The power devices with wide bandgap semiconductors such as SiC and GaN are essentially superior to the Si device in the high breakdown electric field and the high-temperature operation. This year will be the first year when the power devices and HEMTs using SiC and GaN would come into practical applications, and the future trends are focused on. This workshop covered a broad range of areas from the crystal growth of SiC and GaN to their device applications.

13:00 - 13:45 “Seeking New Application Fields Using Group III Nitrides”  
Hiroshi Amano, Nagoya University

13:45 - 14:30 “Automotive Applications of GaN Power Devices”  
Tetsu Kachi and Tsutomu Uesugi, Toyota Central R&D Labs., Inc.

14:30 - 15:15 “Recent Progress of GaN HEMT for High Frequency and High Power Applications”  
Masahito Kanamura, Toshihide Kikkawa, Fujitsu Labs. Ltd.

(15:15 - 15:30 Break)

15:30 - 16:15 “Progress and Future Challenges of SiC Power Devices”  
Tsunenobu Kimoto, Kyoto University

16:15 - 17:00 “Development of SiC Single Crystals Growth”  
Jun Kojima, Kazukuni Hara, Shoichi Yamauchi, Shoichi Onda,  
R&D Partnership for Future Power Electronics Technology Research  
Laboratories, DENSO CORPORATION

17:00 - 17:45 “Recent Progress of SiC Power Devices and Remaining Issues”  
Tatsuo Oomori, Masayuki Imaizumi, Mitsubishi Electric Corporation

## =Workshop (2)=

### Recent Advancement in Printed Organic Electronics

Organizers : H. Usui (Tokyo University of Agriculture and Technology)  
T. Someya (The University of Tokyo)

Rapid progress in organic electronics has been achieved in recent years, leading to promising results in the field of organic light emitting diodes (OLEDs) and organic field effect transistors (OFETs). Instead of replacing the conventional inorganic semiconductors, the final goal of organic electronics is considered to realize printed electronics, which can bring about innovative breakthrough in cost effectiveness, large scale, as well as flexibility. Although the roll-to-roll printed organic electronics have some ways to come into the market, there has been the steady progress in this area in recent years. This workshop reviews the current status and perspective of printed organic electronics especially in viewpoint of processing and application technologies.

13:00 - 13:45 “Introductory Talk and Overview of Printed Organic Electronics”  
Takao Someya, The University of Tokyo

13:45 - 14:30 “Low-Temperature / High Resolution Printing Techniques for Flexible TFT Devices”  
Toshihide Kamata,  
National Institute of Advanced Industrial Science and Technology

14:30 - 15:15 “Flexible TFT Array by Printing Method”  
Manabu Ito, Display Research Laboratory,  
Technical Research Institute, Toppan Printing Co., Ltd.

(15:15 - 15:30 Break)

15:30 - 16:15 “A Rollable OLED Display Driven by OTFT”  
Mao Katsuhara, Makoto Noda, Norihito Kobayashi, Akira Yumoto,  
Ryouichi Yasuda, Shinichi Ushikura, Gen Yukawa, Nobukazu Hirai,  
Iwao Yagi, and Kazumasa Nomoto,  
Display Device Development Division, Sony Corporation

16:15 - 17:00 “Printed Electronics for Large Area Flexible Device”  
Hiroki Maeda, Research & Development Center, Dai Nippon Printing Co., Ltd.

17:00 - 17:45 “Roll-to-Roll Gravure Printing Process for Penny RFID Tags”  
Minhun Jung<sup>1,2</sup>, Jinsoo Noh<sup>1,2</sup>, Joonseok Kim<sup>1,2</sup>, Kyunghwan Jung<sup>1,2</sup>,  
Hwiwon Kang<sup>1,2</sup>, ChaeminLim<sup>1,2</sup>, Soyeon Kim<sup>2</sup>, Kwangyong Lee<sup>1</sup>,  
Daae Kim<sup>2</sup>, Dongsun Yeom<sup>2</sup>, Yongsu Park<sup>1</sup>, Minjin Lee<sup>1</sup>,  
Donghwan Kim<sup>1,2</sup>, Yong-Gil Lee<sup>2</sup>, Kwangyong Park<sup>2</sup> and Gyujin Cho<sup>1</sup>,

<sup>1</sup>Sunchon National University, <sup>2</sup>Printed Electronics Research Institute, Paru Co., Ltd.